

## *Through Marshall's Advanced Space Transportation Program*

# Levitated Locomotion On Highway to Space

by Deana Nunley

**T**HIS is a thrilling ride," announces a pre-recorded, bass voice over the clank of your seat belt buckle. You're strapped in for the ride of your life.

You patiently waited and watched as others experienced the adventure. Your eyeglasses and other loose articles tucked away, now it's your turn.

But this is no ordinary roller coaster ride and you're not at an amusement park. You're perched on an airport runway, ready for take-off on your first trip to space.

Tickets could go on sale just after the turn of the century.

NASA's Advanced Space Transportation Program at

*See Levitation on page 6*



NASA photo by Dennis Keim

## **Center Director Stephenson Meets With Managers**

Art Stephenson, Marshall's new Center director, holds his first meeting Sept. 28 in Bldg. 4200, room P110, with Marshall senior managers.

## *Von Braun Inducted Into Hall of Fame*

**M**ore than 60 supporters and friends of the late Dr. Wernher von Braun traveled to Birmingham last week for a ceremony marking von Braun's induction into the Alabama Men's Hall of Fame.

The group included current and retired Marshall employees, as well as friends and associates of von Braun, who served as the

first Director of the Marshall Center from 1960 until 1970. The induction ceremony was hosted by the Alabama Men's Hall of Fame and the Women's Committee of 100 for Birmingham.

Dr. William R. Lucas, who is retired from the Marshall Center and who also

*See Von Braun on page 7*

## Center Receives ISO 9001 Registrations

**T**he Marshall Center has received the two ISO 9001 Registrations through our registrar, National Quality Assurance. The registrations are from United States Accreditation Body and the Dutch Council for Accreditation.

"We also have received registration plaques. I invite you to visit the main lobby in Bldg. 4200 to see the certificates as well as the ISO 9000 display," said Deputy Director Carolyn Griner. Copies of the certificates may be viewed on the ISO 9000 homepage at:

<http://iso9000.msfc.nasa.gov:9001/index.html>

Plaques will be handed out during a

Center director's staff meeting and soon will be on display around the Center.

"Several benefits have already been realized as a result of ISO 9000 and it is our goal to increase our scope in the near future to involve additional organizations and activities here at Marshall," Griner added. "The ISO 9001 Management System has been an excellent approach for us to improve our processes, become more efficient, instill more discipline, and demonstrates that MSFC is committed to providing quality products and services to our customers. Our Marshall Center employees have once again risen to the occasion, and you are to be commended."

## NASA To Mark 40th Year on Oct. 1

**T**omorrow, Oct. 1, marks the 40th anniversary of the National Aeronautics and Space Administration (NASA).

Sputnik I, the world's first artificial satellite that the Soviet Union launched on Oct. 4, 1957, provided the impetus for the founding of NASA.

The Sputnik crisis led the nation to turn to Wernher von Braun's Army rocket team in Huntsville to launch America's first satellite. Von Braun's team, who would provide the nucleus two years later for the establishment of NASA's Marshall Space Flight Center in Huntsville, launched Explorer I on Jan. 31, 1958, using a modified Army Jupiter-C rocket.

*See 40th Anniversary on page 7*

# Tremendous Gamma-Ray Flare Blasts Earth

An intense wave of gamma rays, emanating from a catastrophic magnetic flare on a mysterious star 20,000 light years away, struck the Earth's atmosphere on August 27, 1998, providing important clues about some of the most unusual stars in the Universe. Scientists said the gamma radiation posed no health risk to humans.

The wave hit the night side of the Earth and ionized (or knocked electrons out of) the atoms in the upper atmosphere to a level usually seen only during daytime. This astonishing blast of ionization was detected by Professor Umran Inan of Stanford University, Calif. "It is extremely rare for an event occurring outside the solar system to have any measurable effect on the Earth," Inan said. It was so powerful that it blasted sensitive detectors to maximum or off-scale on at least seven scientific spacecraft in Earth orbit and around the solar system.

The wave of radiation emanated from a newly discovered type of star called a magnetar. Magnetars are dense balls of super-heavy matter, no larger than a city but weighing more than the Sun. They have the greatest magnetic field known in the universe, so intense that it powers a steady glow of X-rays from the star's surface, often punctuated by brief, intense gamma-ray flashes, and occasionally by cataclysmic flares like the one observed on August 27. Astronomers think that all these effects are caused by an out-of-control magnetic field — a field capable of heating, mixing, and sometimes cracking the star's rigid surface to bits.

In June a team of scientists led by Dr. Chryssa Kouveliotou of the Marshall Center used NASA's Compton Gamma Ray Observatory to detect a series of about 50 flashes from the star, a type called a Soft Gamma Repeater (SGR), known as "SGR1900+14" in the constellation Aquila. During the flashing episode, Kouveliotou's team, in collaboration with Dr. Tod Strohmayer and his colleagues at Goddard Space Flight Center, Greenbelt, Md., pointed sensitive X-ray detectors aboard NASA's Rossi X-ray Timing Explorer satellite toward the star. They found faint X-rays coming from the star, which pulsed regularly in intensity every 5.16 seconds.

These 5.16-second pulses already had been detected in April, when Dr. Kevin Hurley, University of California, Berkeley, aimed the Japanese/NASA Advanced Satellite for Cosmology and Astrophysics (ASCA) at the star. Comparisons of the ASCA and RXTE data showed that the X-ray pulses were gradually slowing down.

The finding implies that the Soft Gamma Repeater has a magnetic field about 800 trillion times stronger than Earth's magnetic field, and about 100 times stronger than any found anywhere in the Universe. Kouveliotou and her team had earlier found that another SGR was also a magnetar. This was exactly what Dr. Robert Duncan, University of Texas, Austin, and Dr.

Christopher Thompson, University of North Carolina, Chapel Hill, predicted in 1992 when they originated the "magnetar" theory.

Before the NASA team could announce these conclusions, SGR1900+14 emitted the tremendous flare of August 27, which was observed by almost every spacecraft with a high-energy radiation detector in space.

"Magnetars seem to answer several mysteries about the structure and evolution of stars," said Kouveliotou. "We think magnetars spend their first 10,000 years as Soft Gamma Repeaters. As they weaken with age and slow their rotation, they become Anomalous X-ray Pulsars — stars that do not have enough 'juice' to flash anymore, but which emit a steady flow of X-rays for perhaps another 30,000 years. After that, they fade to black and drift for eternity through the heavens. The absence of observable pulsars in some supernova remnants just means that the pulsar's lights have gone out sooner than we expected."

A magnetar forms from the explosion, or supernova, of a very large, ordinary star. The star's heavy center collapses under its own gravity into a dense ball of super-compressed matter 12 miles across. This "neutron star" consists mostly of neutrons in a dense fluid, but the outer layers solidify into a rigid crust of atoms about 1 mile deep, with a surface of iron.

Even with this solid crust, a magnetar is incredibly unstable.

*See **Magnetar** on page 4*

## Marshall Stars



**Rex Geveden**

**Rex Geveden** has entered into Level 4 of the NASA Project Management Development Process (PMDP). Geveden is the first NASA employee to be approved into Level 4 of this process and his entry indicated that skills, knowledge and experience needed to be an outstanding project leader have been achieved and continue to be enhanced. The PMDP

is the NASA standard for professional development for members of the project management team.

**Judy Martin**, at right in the photo below, received an Exceptional Service Medal from Marshall Deputy Director



Carolyn Griner. Martin received the medal for unusual dedication and tenacity demonstrated in the development and implementation of a number of exceptional streamlining efforts within the Marshall Incentive Award program.

# Workforce Stand-Down at Marshall Focuses on Safety

The Marshall Center marked a work stand-down Sept. 23 to dedicate the entire day to safety.

With the exception of mandatory services—such as fire, security and cafeterias—all work was ordered suspended to allow personnel to attend Safety Day activities.

The day's events began with a kickoff in Morris Auditorium with a program that featured keynote speaker Fred Gregory, Office of Safety and Mission Assurance associate administrator at NASA Headquarters, and a former astronaut.

Prior to introducing Gregory, Marshall Deputy Director Carolyn Griner told the audience that establishing the Center as number one in safety in NASA was a top goal at Marshall. She called safety an integral part of the life cycle of all Marshall programs and operations. Safety success requires commitment and involvement of the total workforce at and away from the Marshall Center, she said. A comprehensive safety and risk management program enhances the probability of mission success, Griner said.

Gregory noted NASA's new safety initiative. "We (NASA) want to be number one in the world," regarding safety, Gregory told the audience in Morris Auditorium.

During the day employees viewed local safety vendors' products at a Safety & Health Fair.

In addition, visiting astronauts and Center managers participated in informal tours of the Center. Employees also attended



NASA photos

**Fred Gregory, associate administrator from the Office of Safety and Mission Assurance at NASA Headquarters, helped to kick-off and former astronaut kicked-off Marshall Center's Safety Day activities Sept. 23.**



NASA photo

**Astronaut Bill McArthur, left, presents an autographed flight safety poster to E.C. Lee, president and CEO of Summa Technology during the astronaut tour.**

planned organizational activities and were challenged to consider how their job duties affect the safety of flight hardware, how their work environment could be safer, and how to improve their personal safety.

As part of an entire week of safety activities, daily "Lunch-n-Learn" sessions were held in Morris Auditorium with a variety of safety topics. Guest speakers offered advice on home, driving and boating safety; and building tornado shelters inside the home.

The "Lunch-n-Learn" session on Wednesday included an account by Capt. Dennis Fitch who was aboard United Flight 232 on July 19, 1989, when it suffered a complete loss of flight controls at 37,000 feet.

The plane crash landed in Sioux City, Iowa. Fitch told how he began the flight as a passenger and ultimately became a member of the cockpit crew.

## Marshall Center's "Neighborhood Watch" Initiative

### What

*The "Neighborhood Watch" is an initiative to assign management responsibility for "neighborhoods" around the Center. Residents of these neighborhoods will be continuously vigilant to safety, environmental and housekeeping problems and problem reporting.*

### Why

*Recent safety and environmental "near misses."*



**As part of Safety Day activities, employees viewed local safety vendors' products at a Safety and Health Fair in Bldg. 4200.**

***During National Metric Week Oct. 4-10***

## Employees Urged to Think Metric

*by Darlene Springer*

*Marshall Metric Coordinator*

As part of the National Metric Week Celebration Oct. 4-10, all employees at Marshall Center are encouraged to "think metric" and view a metric display that will be located in the lobby of Bldg. 4203.

National Metric Day is Oct. 10. Since the metric system deals in terms of tens (10mm=1cm, 100cm=1m, 1000m=1km, etc.), it is logical that the tenth day of the tenth month be recognized National Metric Day.

The United States is the only major country still working with the English

inch-pound system. The British, principal developers of the inch-pound system, are now using the metric system. Liberia and Myanmar, formerly Burma, are the other countries using the inch-pound system.

Industry continues to lead the metrication effort in this country because of its interests in the international marketplace. Federal agencies, such as NASA, are involved because of the international exchange of scientific and engineering knowledge.

NASA guidelines state that the government is to keep pace with industry conversions by using commercially available metric items wherever economically and technically practical.

### Health & Safety Day Door Prize Winners

#### **AJT & Associates**

*\$25 Cash:* Beverly Robinson/CR20

#### **Atlas/Deep South Safety Shoes**

*Safety Shoes:* Jack Stokes/JA81

#### **Boeing International Space Station**

*Carry-on bag:* Dianne Miller/CR01

#### **Celco Safety Inc.**

*First Aid Kit:* Marvin Nowlin

#### **Coast Guard Auxiliary**

*Life Jackets:* Judith Gregory/EP94, Russell Mattox/EB32

*Fire Extinguisher:* Billy Caldwell/R.W. Beck, Frankie Jernigan/EO26

*Ballcap & Drink Huggie:* Terry Hamm/CR60

*Safe Boating Course:* Paul Kennedy/EB54, Ed Adams/EL02

#### **Dalloz Fall Protection**

*Smoke 'N Grill:* Gladys Franklin/GP30

#### **Grainger**

*Protective Rainwear:* Bruce Askins/EH53, John Odo/EL62

*Tool Box:* Ronnie Smith/EG&G

*Traveling Sprinkler:* Ralph Allen/AB41

*Compact First Aid Kits:* Jean Payne/CO10, Linda Schrimsher/MG10, Olander Myers/EO27

*Industrial Protective Eyewear:* Anita Nunley/JA10, Jean Clark/RCI, Deana Nunley/ASRI, Jim Linville/OIG, Ena Nishimuta/PD21, J. Montenegro/EB34, Gloria Gideon/EP82, Trent Griffin

#### **Industrial Safety Office**

*Fire extinguishers:* Rene McBrayer/CO01, Tim Dowling/ED53, Richard Fletcher/SCSC  
*Children's stickers:* Virginia Barron/AB41  
*Children's Foam Puzzle Mat:* Frank Olinger/HEI

#### **Koorsen Fire Protection Services**

*Fire Extinguisher:* Larue Stewart/BR01

#### **Lockheed**

*Halloween Flashlights:* Anthony Day/Thikol, Marilyn Ratliff/CO30, Shelve Miller, Stayce Cole/ES94, Jan Matthews/GP22

#### **Mid-South Testing Inc.**

*Complimentary in-home radon test:* Helen Eddleman/DA01, Jack Caudle/AB31, Annie Brazelton/ED53, Carolyn Lundy/CO10

#### **NASA Office of the Inspector General**

*Fire Extinguisher:* Sandy Boyd, Redstone Fire Deptment

#### **National Safety Council**

*Umbrella:* Vicki McLemore

#### **North Safety**

*First Aid Kit:* Robert Jones/MicroCraft

#### **Sexton Welding & Safety Shoe Company**

*Safety Shoes:* Drayton Talley/PWI

*Welding Helmet:* Rodney Barnett/SA24

#### **Superior Industrial Supply Company**

*Miniature Cooler:* Sarah Ervin/BF70

#### **Sverdrup**

*Carbon Monoxide Alarm:* Sittra Battle/AI51

*Auto First Aid Kit:* Carlla Hooper/EH01

#### **VWR Scientific Products**

*\$50 Door Prize -* Sal Caruso/EH42, Ann Traw/EJ71, Al Jones/EL62, Sandy Brown/GP24

*Teddy Bears -* Angela Gillis/EB42, Stayce Cole/ES94, Patrick McManus/EB13

*Critical Cover Baseball Caps -* Shawn Selvidge/Thikol, Pendergrass/EL62, Shirley Blair/CR30

#### **Well Safe Inc.**

*NFL Hardhats:* Rita Keith/EB51, Mary Hooper/Summa Tech.

#### **The Women's Center**

*Health Books:* Angie Timmons/EH13, Renee Cox/JA91

## McMillan Named Deputy Director of Technology Transfer Office

Vernotto McMillan has been appointed deputy director of Marshall's Technology Transfer Office.

McMillan, the former technical



**Vernotto McMillan**

manager in the Technology Transfer Office, will support the Technical Transfer Office director in overall management and technical direction of the office.

McMillan joined Marshall in 1983 as a professional engineering intern for the Science and Engineering Directorate. McMillan also has served in the Reusable Solid Rocket Motor Chief Engineering Office, the Office of Safety and Mission Quality at NASA Headquarters, and within the Materials and Processes Laboratory. He received the NASA Exceptional Achievement Medal in 1994 and 1998.

## Magnetar

*Continued from page 2*

Almost unimaginable magnetic fields, about 800 trillion times that of Earth's, cause the crust to crack and ripple in powerful starquakes. The energy released in these explosive starquakes streams out into space as intense flashes of gamma-rays. In the August 27 flare, pure magnetic energy was also released, as the star's entire crust was broken to bits.

"A magnet this strong could erase the magnetic strip on the credit cards in your wallet or pull the keys out of your pocket from a distance halfway to the Moon," said Duncan.

More information about magnetars or the Aug. 27 event may be found at the following Web sites:

<http://www.msfc.nasa.gov/NEWS>

## EDTeC Offers Employees Learning Opportunities

The Employee and Organizational Development Office offers a variety of videotaped seminars produced by the Auburn University Engineering Extension Service. The tapes are now available in the EDTeC Learning Center.

The video courses may be used to earn Continuing Education Units. For more information, contact EDTeC at 544-8291.

### Training Opportunities

#### *Government Printing Office (GPO) Style Manual Course:*

Oct. 20 from 8 a.m.-4 p.m. in Bldg. 4200, room G-13/C, seating capacity is 20. Instructor: Dr. John Hightower.

#### *Building Leadership Course:*

Oct. 21 from noon-3 p.m. in Bldg. 4200, room G-13/I, seating capacity is 45.

#### *The Phoenix Principle:*

Oct. 22 from 2-4 p.m. in Bldg. 4200, room G-13/I, seating capacity is 75. Instructor: James Belasco.

#### *Power Point '97 Beginning:*

Oct. 28 from 8:30 a.m.-4:30 p.m. in Bldg. 4200, room G-17, seating capacity is 13.

### National Technology Transfer Center Distance Learning Event on Successful Technology Transfer: *Evaluating and refining Technologies:*

Oct. 13 from noon-2 p.m. in Bldg. 4200, room 329.

### *Partnering and Commercialization:*

Oct. 20 from noon-2 p.m. in Bldg. 4200, room 329.

## CFC Kicks-Off Oct. 5 at Marshall

Nanine Bilski, president of the America the Beautiful Fund, will be the keynote speaker during the 1998 Marshall Center Combined Federal Campaign (CFC) kick off. The event will be held from 9-10 a.m. Oct. 5 in Bldg. 4200, Morris Auditorium.

Special guest will be Terry Morris, an electrical engineer from Langley Research Center, Va.

Bilski has assisted and developed over 65,000 Operation Green Plant projects to grow food for the hungry, help the handicapped and the sick through horticultural therapy and improve blighted neighborhoods with intergenerational growing activities.

She is also president of Eco Theater Inc., treasurer of the Natural Area

Council and she also serves on the board of Trustees and the Executive Committee of America's charities. America the Beautiful Fund is a national, charitable, non-profit organization started in 1965 to assist local volunteer projects to improve community life.

Morris, who is featured in the 1998 national CFC video, will share his story on how a CFC recipient agency played a significant role in his life.

Entertainment for the event will be provided by the Sign Painters, a group promoting deaf awareness in the commu-



Nanine Bilski

nity through music, mime, dance and skits. Door prizes will be awarded and refreshments will be served.

This year is going to be a great year for the campaign," said

CFC executive chairperson Cathy Nichelson. "Not only have center employees given more per person but the overall contribution continues to increase year after year. Our vision for the campaign is to help more people this year than ever before.

The Marshall Center has always stood out in the Tennessee Valley campaign in the generous way we give and show our support. Our monetary goal for this year is \$432,420."

Following the Morris Auditorium event will be an Agency Fair from 10 to 11 a.m. in the lobby of Bldg. 4200.

Agencies participating in the Fair include NASA College Scholarship Fund, AGAPE, Technology Assistance for Special Customers, Arthritis Foundation, Crohn's & Colitis Foundation of America, March of Dimes Birth Defects Foundation, National Multiple Sclerosis Society, North Alabama Sickle Cell Foundation, Planned Parenthood of Alabama, Hospital Hospitality House, Children's Hospital, Southeastern Guide Dogs, America the Beautiful Fund, The Sign Painters and National Children's Advocacy Center.



Terry Morris

## Child Development Center Joins Food Program

The Child Development Center at Marshall is participating in the U.S. Department of Agriculture (USDA) Child Care Food Program.

Balanced and nutritious meals are available at no separate charge to all enrolled persons at the Child Development Center and will be provided without regard to race, color, national origin, age, sex or disability.

If you think you or anyone has been discriminated against, write to: Administrator, Food and Nutrition Service, 3101 Park Center Drive, Alexandria VA 22302.

For more information about the Child Care Food Program, visit the Center in Bldg. 4494, call the Center at 544-8609; or write to: Child Care Development Center, P.O. Box 9138, Marshall Space Flight Center, AL 35812

# Levitation

*Continued from page 1*

Marshall Center is developing magnetic levitation technologies that could reduce the cost of going to space so dramatically that everyday people could leave the planet.

NASA and industry partner PRT Systems Inc. of Park Forest, Ill., are teaming with an amusement ride manufacturer and a British university for research into magnetic levitation — or maglev — that could help launch spacecraft into orbit using magnets to float a vehicle along a track.

“Magnetic levitation is a promising technology for future space transportation as we build the highway to space,” said Garry Lyles, manager of the Advanced Space Transportation Program. “The most expensive part of any mission to low-Earth orbit is the first few seconds — getting off the ground. Maglev is a low-cost alternative for space transportation because it leaves the first-stage propulsion system on the ground.”

Just as high-strength magnets lift and propel high-speed trains and roller coasters a couple of inches above a guideway, a maglev launch-assist system would electromagnetically drive a space vehicle down a track. The carrier could be similar to a flatbed railcar. The magnetically levitated vehicle would catapult from



Courtesy photo

**NASA is developing magnetic levitation technology that could help reduce the cost of getting to space. Dr. Denis Edwards, a researcher at the University of Sussex in Brighton, England, sets the controls of an experiment that magnetically levitates a sled and propels it across a 20-foot track at 120 mph. Maglev experiments are being conducted in a University of Sussex laboratory.**

the ground at 600 mph and then shift to a rocket engine to reach orbit.

“A maglev system is virtually maintenance-free because it has no moving parts and there’s no contact,” said Lyles. “It could help launch a spacecraft from a typical airport runway to low-Earth orbit every 90 minutes.” A single maglev system is projected to work for 30 years.

Cutting-edge technology for maglev emerged through successful proof-of-concept experiments at the University of Sussex in Brighton, England. In a laboratory there, a 2-foot-long sled is propelled at 120 mph along a 20-foot electromagnetic track.

The track is actually an advanced linear induction motor that provides thrust, lift and the added advantage of guidance of the launch vehicle. Figuratively a rotary motor split in half and rolled out flat, a linear induction motor produces thrust in a straight line instead of by turning a shaft or gears.

Motors for the experiment were developed by PRT and funded by Arrow Dynamics Inc. of Clearfield, Utah, an amusement ride manufacturer.

As part of a larger scale experiment in 1999, two tracks measuring 50 and 400 feet are planned in

Huntsville. Design plans are scheduled to be finalized within two years for a 5,000-foot track capable of launching a 40,000-pound payload at a test site.

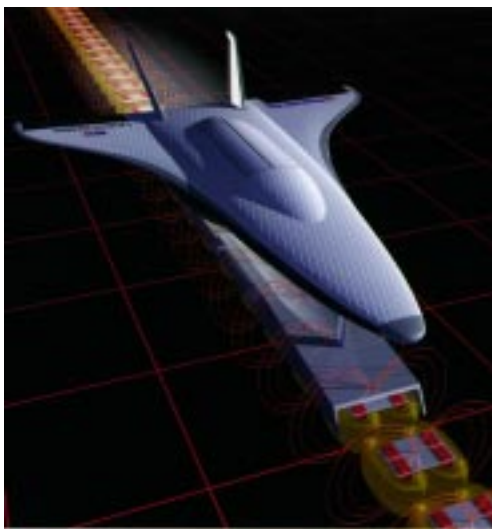
Two other approaches to maglev for space launch are being developed for NASA by Lawrence Livermore National Laboratory of San Francisco and Foster-Miller Inc. of Waltham, Mass.

The Livermore team has developed a system that uses permanent magnets and a novel linear motor that runs without superconductors or complex feedback circuits. The Foster-Miller system uses a linear motor with superconducting magnets on the vehicle.

As early as 2007, a maglev launch assist system could be used to launch very small communications satellites for thousands of dollars per pound.

Within 20 years, this technology could be used to help launch much larger payloads to orbit for only hundreds of dollars per pound — a welcome contrast to today’s launch costs of \$10,000 per pound. When the price comes down, more people go up. And that’s when the tickets go on sale for a thrilling ride to leave the planet.

More information about on the Advanced Space Transportation Program at Marshall may be found at the following Web site: <http://stp.msfc.nasa.gov>



Courtesy graphic

**An artist's concept of a magnetic levitation system for space launch.**

# Von Braun

*Continued from page 1*

served as Marshall Center director from 1974 until 1986, spoke to those who gathered for the ceremony.

"He (von Braun) was an engineer, a scientist, a scholar, a visionary leader, and a persuasive communicator and motivator," Lucas said.

In addition to directing the development of the Saturn V launch vehicle that allowed Americans to send the first humans to the Moon in 1969, von Braun "used his substantial influence and persuasive powers in the establishment of the University of Alabama in Huntsville and in boosting the research capabilities in other Alabama universities." In addition, von Braun called for the establishment of a "Space Camp where children could learn about space exploration and be stimulated to a more serious study of mathematics and science as he had been in his early teen years," Lucas said.

"Truly, he was a giant among men, a genius whose legacy as the prime mover of America as a space-faring nation will live forever," Lucas added.

Among those in the Huntsville group who travelled to Birmingham were members of the German rocket team that von Braun assembled in the early 1940s in Germany and who later came to the United States to work on advances in rocketry here.

Dr. Ernst Stuhlinger, who began his association with von Braun in Germany and who served as associate director of science at Marshall before retiring, unveiled a plaque honoring von Braun. The plaque will be placed in the Harwell G. Davis Library on the campus of Samford University in Birmingham.

The Alabama Men's Hall of Fame was established to parallel the Alabama Women's Hall of Fame at Judson College in Marion.

In 1987, the Alabama State Legislature passed a bill establishing the Alabama Men's Hall of Fame. Men's Hall of Fame board member State Rep. Howard Sanderford of Huntsville was instrumental in the nomination of von Braun for the honor.

## Special Event Recognizing NASA's 40th Anniversary To Be Broadcast Thursday on Centerwide TV

The 40th anniversary of NASA will be commemorated at 1 p.m. CDT, Thursday at NASA Headquarters. The special event, designed to recognize NASA's four-decades of accomplishments, will be carried live on centerwide television.

The program will feature a new music video illustrating 40 years of NASA achievement, as well as a historical perspective by Dr. Susan Eisenhower, fellow at the Institute of Politics at Harvard University's JFK

School of Government and granddaughter of President Dwight Eisenhower.

NASA Administrator Dan Goldin will offer a look at how NASA intends to build on its tradition of excellence and describe the goals he believes we should pursue in the future. Key individuals who were instrumental in developing the National Aeronautics and Space Act of 1958 have also been invited and will be recognized for their roles.

## 40th Anniversary

*Continued from page 1*

Although Cold War rivalries prompted the beginnings of the space race, the legislation that created NASA called for the peaceful exploration of space for the benefit of all.

NASA began operations by absorbing the earlier National Advisory Committee for Aeronautics; its 8,000 employees, an annual budget of \$100 million, three major research laboratories —Langley Aeronautical Laboratory, Ames Aeronautical Laboratory, and Lewis Flight Propulsion Laboratory—and two smaller test facilities.

The new Agency later incorporated the Von Braun team in Huntsville, a space science group of the Naval Research Laboratory in Maryland, and the Jet Propulsion Laboratory managed by the California Institute of Technology for the Army. Eventually NASA created other Centers and today has 10 located around the country.

NASA began to conduct space missions within months of its creation and in its 40 years, has made historic achievements in many areas of aeronautics and space research. Most well-known of its efforts are the human space flight initiatives. Upon its creation in 1960, the Marshall Center assumed a direct role in the first major initiative—Project Mercury—by providing the Redstone rocket that propelled America's first astronaut Alan Shepard and his Mercury capsule in 1961.

Throughout the decade of the 1960s, the Center also developed the Saturn family of launch vehicles, the largest of which, the Saturn V, boosted the first humans to the Moon in 1969. NASA also assigned the Marshall Center responsibilities for the Skylab space station, the Lunar Roving Vehicle, and the major propulsion elements for the Space Shuttle. NASA also gave the Center key assignments in missions dedicated to space science like Spacelab, the Hubble Space Telescope and others. Today, the Center is moving forward with more new space-related assignments.

"From the beginning, NASA has meant excitement to the employees and the general public," recalls Marshall's Rocky Clarke, who recently marked 50 years of government service. "This excitement quickly evolved into great pride in the NASA's accomplishments. Looking back at the last 40 years is to reflect on those accomplishments and remember all of one's coworkers whose ability and hard work made it possible."

Clarke's feelings are similar to those shared by Marshall's Gertrude Conard, who has marked 40-plus years of service to the government. "These were changing, demanding and stimulating experiences for me. The numerous launches continue to be exhilarating, particularly when we realize that we make contributions to the successes. It is an exciting time to be on the team."

## Employee Ads

### Miscellaneous

- ★ Entertainment center, birch, 6' x 6.5', \$300; patio furniture, white, two chairs, pads, end table, \$50. 859-4833
- ★ Auburn football tickets: Louisiana Tech Oct. 24; Central Florida Nov. 7 homecoming, 2 at \$25 ea. 722-9114
- ★ NordicTrack Walk Fit 5500, \$250 obo. 883-5543
- ★ York heat pump, 2-ton split system, \$400. 828-1127
- ★ 15' Crosby boat w/18HP Johnson, trailer, \$950; steel utility trailer, 8' x 5' x 1', 13" tires, \$150. 881-0278
- ★ Stereo w/cabinet, \$50; mixed set of golf clubs, \$30. 536-8951
- ★ 80 MG hard drive, Caviar 280, Western Digital, model WDAC280-325. 882-7084
- ★ PC games, \$15, \$10 and \$5 ea. 828-9651
- ★ Cedar landscape timbers, 6" x 8" x 8', 25 timbers at \$2 ea. 539-3166
- ★ Weslo arc skier plus cross country skier, folds for storage, \$75. 830-4477
- ★ Tiller, 3 HP, \$50. 837-0085
- ★ Two living room chairs, gold with low arms, \$100 for both. 881-4808
- ★ Recliner chair, burgundy with black, beige and blue stripes, Stainguard-protected fabric, \$275. 828-3373
- ★ Wood frame and wire mesh rabbit hutch, 2' x 5' w/stand, \$20. 772-1974
- ★ Persian kittens: one male, blue, and two females, blue and blue point. 498-0629

### Vehicles

- ★ 1984 Chrysler New Yorker, 139K miles, \$1,295. 883-2044
- ★ 1984 Dodge RAM van, 8-passenger. 518-9023 after 6 p.m.
- ★ 1995 Ford Windstar, 70K miles, dual A/C, tow package, \$10,200 obo. 859-4156
- ★ 1996 Nissan Maxima SE, black, 5-spd., leather interior, Bose system, 35K miles, \$17,500 obo. 551-1007
- ★ 1995 Chrysler New Yorker, all power, safety features, 59K miles, maroon w/gray interior, \$10,500. 880-9025
- ★ 1983 Olds Supreme, 4-dr., V-8 rebuilt engine, 20K miles, stereo, PS, cruise, \$2,500. 883-1446

- ★ 1989 Buick Reatta, white/crimson, 96K miles, \$8,500. 536-5132
- ★ 1990 Mastercraft TriStar 190, \$12,900. 737-9570
- ★ 1990 Lumina van, 83K miles, \$5,000 obo; 1989 Ford Aerostar van, 256K miles, \$2,500 obo. 837-5581
- ★ 1978 Cutlass Supreme, rebuilt 260 c.i. engine, solid Centerline wheels, Hurst shifter, \$1,000 obo. 776-3373
- ★ 1988 Honda Civic DX, 5-spd., A/C, CD, 136K miles, \$2,500. 461-7854
- ★ 1990 Mazda B2200 LE-5 pickup, 5-spd., A/C, 97K miles, \$4,500. 772-0382
- ★ 1995 Dodge neon, gray, PS/AC/auto/ 4-dr., 40K miles, \$8,300. 851-1854 after 5 p.m.

### Wanted

- ★ Rattan furniture for sun room. 830-4477
- ★ Bike trailer /jogger for children, double occupancy, large wheels. 534-8176
- ★ Large wooden climbing pole for cat. 536-7541

### Free

- ★ Two 4-year-old cats to good home: white male, Siamese-marked female, neutered, declawed, littermates. 837-3337

## Center Announcements

- ☛ **MARS Fishing Club** — The next MARS Fishing Club tournament — the "Classic" — is set for Oct. 10. The tournament location will be announced at a later date. Two tournaments — "Live Bait" and "Sauger" are scheduled for November and December, respectively. **Contact:** John Pea at 4-8437, Don McQueen at 4-9073 or Charlie Nola at 4-6367
- ☛ **Emergency Warning System Test** — The monthly test of the Emergency Warning System at Marshall is scheduled for 3 p.m. Thursday. This is an audio test only, and employees should not evacuate to protective areas. If severe weather is occurring at this time, the test will be rescheduled to a later

date. Safety coordinators and monitors should send reports of malfunctioning speakers to: AB11/Emergency Preparedness Officer at 544-5187 as soon as possible.

- ☛ **Toastmasters** — The NASA Lunar Nooners Toastmasters Club will meet at 11:30 a.m. Tuesday, Oct. 6, in the Bldg. 4610 cafeteria conference room. All Marshall employees, contractors and friends are invited. **Contact:** Lee Johns, 544-5142

- ☛ **MARS Ballroom Dance Club** — Tickets are available for the MARS Ballroom Dance Club's Formal Dinner Dance on Saturday, Oct. 17 at the Von Braun Center West Hall. The event — featuring ballroom music by the Paul Chambers Combo — will begin with a social at 6:30 p.m., followed by dinner at 7 p.m. and dancing from 8-11 p.m. Tickets are \$18 per person with a \$3 discount for members, and may be purchased from Tamara Landers at 544-6818, Pat Sage at 544-5427, Ed Ogozalek at 837-1486, Linda Kinney at 544-0563 or Bob Williams at 544-3998. Reservations for a table of eight may be made by calling Woody Bombara at 650-0200.

- ☛ **AIAA** — The American Institute of Aeronautics and Astronautics' 1998 Defense and Space Programs Conference is scheduled Oct. 28-30 at the Von Braun Center. Admission is paid for all Marshall civil service employees with NASA/MSFC badges required for admittance. A complete technical program may be found on the October calendar of the AIAA home page at: <http://www/aiaa.org/>

- ☛ **Marshall Procurement Office Retirees** — Marshall Procurement Office retirees will meet for breakfast at 9 a.m. Tuesday, Oct. 6, at Shoney's Restaurant, Haysland Square. **Contact:** Carl Melton, 837-5604

- ☛ **"Solar Thermal Propulsion"** will be the topic of a presentation hosted by the Alabama Solar Association at 6:30 p.m. Wednesday, Sept. 30, at the Huntsville Main Library Auditorium. Speakers will include Leslie Curtis, manager for In-Space Transportation Projects, Advanced Space Transportation Program Office at Marshall.

# MARSHALL STAR

Marshall Space Flight Center, Alabama 35812

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